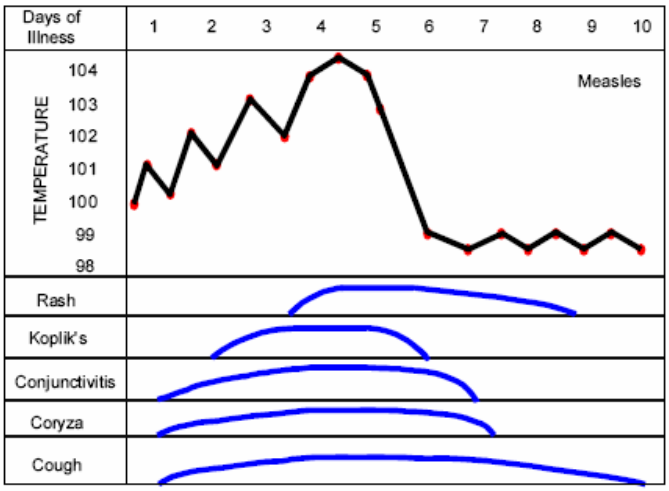
Measles Protocol - Case Management

Clinical and epidemiological identification:

The following information should be collected as soon as possible once a suspect case has been identified. It will help public health to determine the likelihood of a measles infection and will effect the decision on whether to recommend testing and notification of CDC.

Question	Reasoning
Prodrome	
Was there a prodrome (flu-like symptoms occurring before the rash)? Get onset date. Did the patient have a fever? What was the highest temperature? Did the patient have any of the following: cough, coryza (runny nose), or conjunctivitis (red, watery, or scratchy eyes)?	It is highly unlikely that a measles case will not have a prodrome. The prodrome is characterized by a fever, often peaking as high as 103°–105°F, and almost always has at least one of the "three C's" – cough, coryza, conjunctivitis. The prodrome typically lasts for 2-4 days, and symptoms may continue with the onset of rash.
Rash	
Was the rash maculopapular [discolored splotches on the skin that are both flat (macule) and raised (papule)]? Get rash onset date. How long did it last (if the rash has already cleared)? Was the rash present on the whole body? Where did the rash first appear?	It is highly unlikely that a measles rash will last less than three days. The rash begins on the face, and over the next few days extends to the body and extremities. The rash fades in the same pattern that it appeared. Images: http://www.cdc.gov/vaccines/vpd-vac/measles/photos.htm
Other Symptoms	
Does the patient have Koplik spots (bluish-grey specks on the mucous membranes of the mouth)?	Koplik spots are a characteristic sign of measles and can appear 1–2 days before the rash to 1–2 days after the rash.
Did the patient have diarrhea, otitis media (ear infection), or pneumonia (viral or bacterial)?	These symptoms are the most common complications associated with measles infection.
How is the patient acting (running, playing, happy or tired, slow, uncomfortable)?	Persons with measles are usually very ill. Roughly 20% of US cases in 2008 required hospitalization.
Differential Diagnosis	
What made the doctor suspect measles? Has any differential diagnosis been done?	Maculopapular rashes can have many different causes including drug reactions, bacterial infections, and viral infections. It can be helpful to know what other diseases or conditions were ruled out and/or considered.
Vaccination	
Has the patient been vaccinated previously? When and how many doses?	It is very rare for a person vaccinated for measles to develop the disease. One dose of measles-containing vaccine produces immunity in 95-98% of recipients. Two doses of measles-containing vaccine produce immunity in more than 99% of recipients. Vaccine-induced immunity appears to be long-term and possibly life-long.
Epidemiological Information	
Has the patient traveled in the past 3 weeks? Where? Has the patient had contact with anyone who traveled in the past 3 weeks? Where?	Endemic measles has been eliminated from the US. This means that the only way to contract the disease is by being exposed in another country or by being exposed to someone who has the disease.

The time course of clinical events in measles infection.



Source: Infectious Diseases of Children, 9th Edition, Figure 13-1, page 224, 1992. Editors Saul Krugman Samuel L. Katz, Anne A. Gershon, Catherine M. Wilfert. By permission of Mosby Year Book, St. Louis, Missouri

Abnormal measles presentation:

Persons with measles usually present with characteristic disease. Two forms of measles infections that have abnormal presentations are described below.

Atypical measles occurs only in persons who were vaccinated with inactivated measles vaccine and are subsequently exposed to wild-type measles virus. An estimated 600,000 to 900,000 persons received the inactivated measles vaccine in the United States from 1963 to 1967. The inactivated measles vaccine sensitizes recipients to measles virus antigens without providing protection. Atypical measles is characterized by fever, pneumonia, pleural effusions, and edema. The rash appears first on the wrists or ankles and is usually maculopapular or petechial, but may have urticarial, purpuric, or vesicular components. Atypical measles may be prevented by revaccinating with live measles vaccine. Moderate to severe local reactions with or without fever may follow vaccination; these reactions are less severe than with infection with wild measles virus.

Modified measles occurs primarily in persons who received immune globulin (IG) as post-exposure prophylaxis and in young infants who have some residual maternal antibody. It is characterized by a prolonged incubation period, mild prodrome, and sparse, discrete rash of short duration. Similar mild illness has been reported among previously vaccinated persons.

Isolation:

Non-hospitalized persons diagnosed with measles should voluntarily isolate themselves at home until 7 days after rash onset and limit contact within the home to vaccinated persons. Hospitalized patients should be placed in airborne isolation. Measles is considered one of the most contagious diseases in the world.

Treatment:

There is no specific treatment for measles. In children that are immunocompromised or severely ill, the measles virus has demonstrated susceptibility to ribavirin. In communities with a known vitamin A deficiency, a child diagnosed with measles should be administered vitamin A.